

MHS Building Systems Development Story

Structural Aluminum Framing Design.

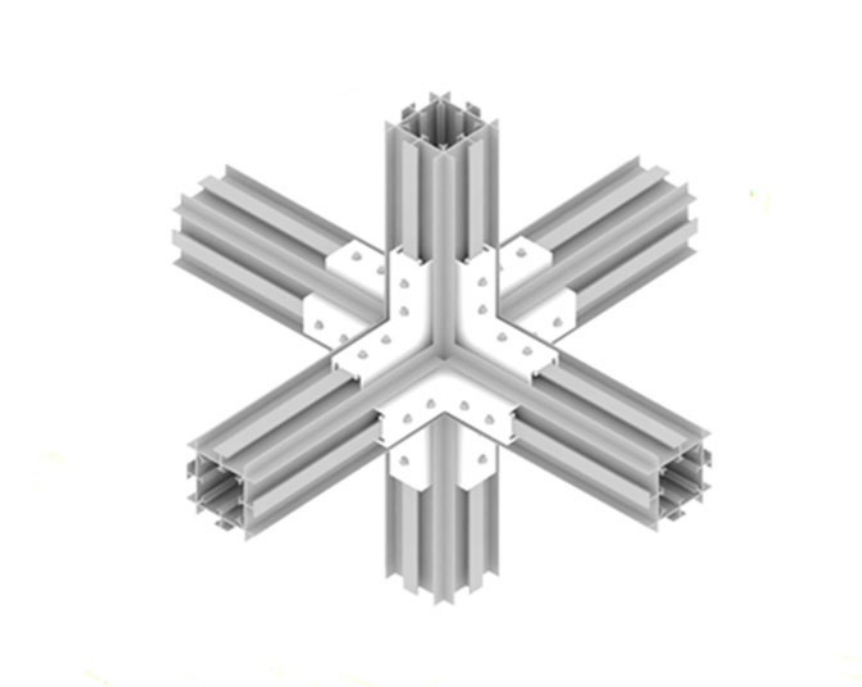
By Tim Siahatgar Designer, Inventor



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Designer, developer and Inventor of MHS Structural Aluminium Framing Design:



Story of MHS Building Systems Developments 2024

MHS Building Systems: Structural Aluminum Framing Design

This document details **Tim Siahatgar's Modular Housing System (MHS)**, a patented, award-winning structural aluminum framing design. **MHS utilizes an interlocking clamp system** for quick and easy assembly, promoting sustainable and efficient construction. The system is **designed for modularity and flexibility**, adaptable to various building types and geographic locations. **Its lightweight design reduces transportation costs and construction complexity**, while the reusable components enhance sustainability. Finally, the document provides contact information and links to learn more about MHS.

Briefing Document: MHS Building Systems - Structural Aluminum Framing Design

1. Introduction:

This document summarizes the key aspects of MHS (Modular Housing Systems) Building Systems, focusing on its structural aluminum framing design, as detailed in the provided document by Tim Siahatgar, the designer and inventor. MHS is presented as an innovative,

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sustainable, and efficient approach to modular construction, addressing limitations in traditional building methods.

2. Inventor & Background:

- **Tim Siahatgar:** The designer and inventor of MHS, possesses over 30 years of experience in design and building.
- **Credentials:** Holds a Master's in Architecture Engineering and Urban Design.
- **Experience:** Has extensive practical experience in structural modular framing (since 1989) and modular architectural design (since 2012). His background also includes graphic art design and international business ownership.
- **Awards & Recognition:** International award winner in graphic art printing and MHS Aluminum Structural Framing; member of various art and building associations. He is also a developer and has published articles, interviews, and podcasts focused on sustainable home design for future generations.
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3. MHS Building System Overview:

- **Core Technology:** MHS utilizes a structural aluminum framing system featuring an **expandable clamp** with opposing jaws, designed to engage frame members with T-shaped center rails and opposing end flanges. This system allows for rapid and efficient modular construction.
- **Modular Components:** The system is designed for modularity, ensuring quick development. These components are tested based on FEMA 461 standards and are engineered for strength and efficiency.
- **Quality Control:** All modular components and panels are manufactured under strict quality control.
- **Key Innovation:** The MHS system is built around an innovative **interlocking bolting system** that addresses the challenges of joining hollow aluminum extrusions, which were previously difficult to connect in structural applications. The MHS system is designed to withstand vertical and lateral loads.

4. Key Problems Addressed and MHS Solutions:

- **Problem:** Difficulty in connecting hollow aluminum extrusions using traditional methods (bolts or welding).
- **MHS Solution:** The MHS interlocking clamping system addresses the problem that had plagued the building industry for over 100 years. Tim Siahatgar specifically identified and solved the problem: "Aluminum welding is too expensive and bolting of two extrusions elements together not accept lateral loads."
- **Problem:** Traditional building methods can be time-consuming, costly and not as easily adaptable.

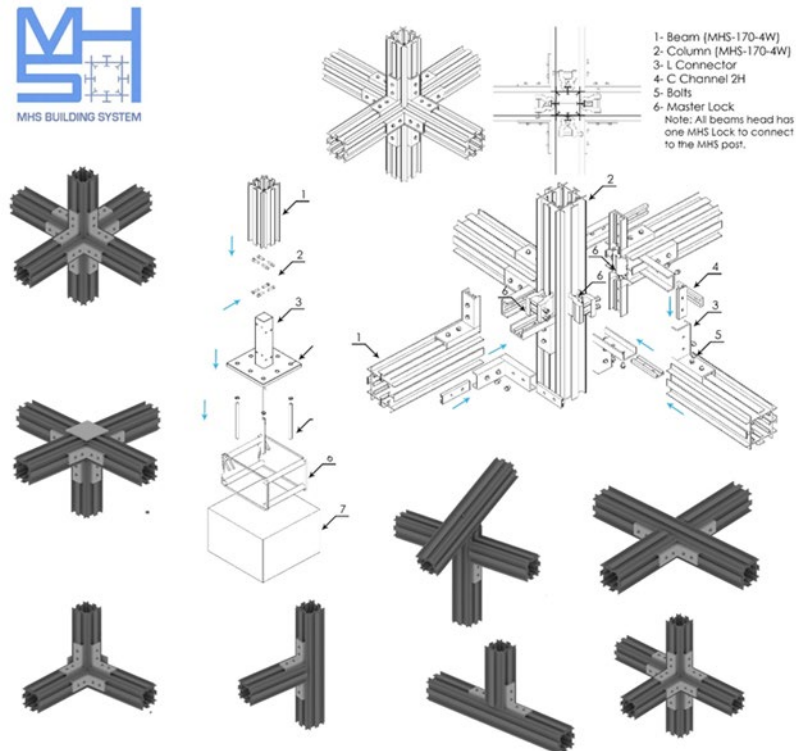
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- **MHS Solution:** Provides a system with modular, geometric space frames, providing support for both vertical and lateral loads, making the system adaptable to diverse requirements.



5. Sustainability & Environmental Impact:

- **Reduced Material Use:** MHS aluminum framing is significantly lighter than steel (1/12th the weight) or concrete (1/24th the weight), leading to reduced foundation requirements. "The weight of concrete used in an MHS foundation is almost one half that required for a steel or concrete structure."
- **Transportation Efficiency:** Lighter materials and flat-pack shipping reduce fuel consumption and shipping costs. "Less weight during transportation of building components means less use of fossil fuel and lower shipping costs. Further, flat pack shipping of the MHS components provides substantially greater efficiency than transport of modular boxes."
- **Reduced Site Impact:** The system eliminates the need for heavy equipment on-site, since "one worker can carry a 12-ft MHS framing member."

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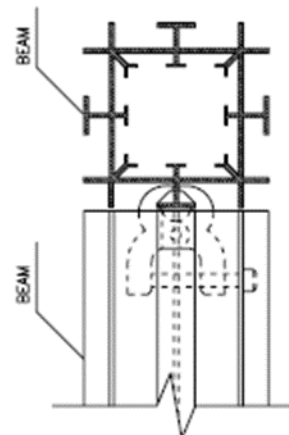
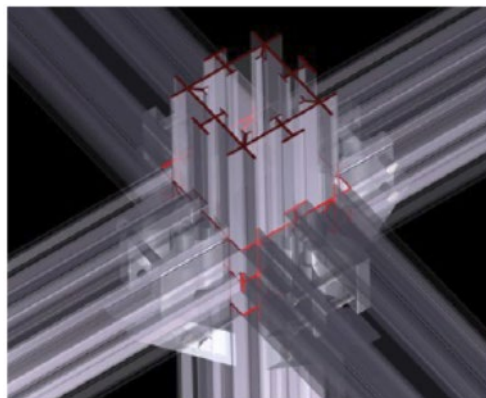
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- **Reusability & Relocation:** The bolt-and-clamp connection allows for easy disassembly, relocation, and reconfiguration, extending the building's life cycle and reducing waste. "The Modular Housing System's unique bolt-and-clamp connection allows disassembly with one hand tool and relocation and reconstruction in the same or entirely different configurations."
- **Passive Solar Design:** The system allows for wider spans and increased glass options, maximizing opportunities for passive solar heating or cooling. "As post-and-beam system, the MHS offers wider spans with more glass increasing the option for passive solar heating or cooling..."
- **Overall:** MHS aligns with sustainable architectural design principles to minimize environmental impact throughout the building lifecycle.

6. Technical Details & Design Features:

- **Interlocking Connectors:** The core of the MHS system lies in its unique interlocking connectors, which allow for easy assembly and structural integrity.
- **Dual Building System:** The system functions as a dual building system, with modular space frame assembly and support for lateral and vertical loads.
- **SIP Integration:** MHS framing works with Structural Insulated Panels (SIPs), MHS shear walls, or diaphragms for seismic and wind resistance. "MHS framing in conjunction with Structural Insulation Panels, (SIP's), MHS shear wall or Diaphragm, providing Requirements for seismic-force and wind resistance on MHS building framing."
- **Manual Assembly:** The system can be assembled manually with simple tools, allowing for flexible designs without complex construction labor demands. "...The system can be assembled manually with the use of a simple impact wrench and framing members connected anywhere along their length."
- **Adaptability:** The system is highly adaptable to different geographic, climatic, and societal needs. "The Modular Housing System's key characteristics of simplicity and flexibility mean this system is adaptable to any geographic, climatic or societal requirements with no waste or additional design constraints."



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7. Target Users:

- MHS is designed for a wide range of users, including modular manufacturers, developers, contractors, engineers, designers, architects, and students.
- It can be used for various structures, from simple studios and mobile RVs to customized housing and commercial buildings up to 3-4 stories.

8. Intellectual Property & Recognition:

- **Patents:** Tim Siahatgar holds patents from the USA and China Patent Office for the Structural Aluminum Framing Design and Modular Aluminum Interlocking Systems.
- **Awards:** The MHS system has received awards and recognition from various bodies, including the State Intellectual Property Office of the People's Republic of China and A Design Award in Italy. "His MHS systems recognized worldwide by many building approval certificates and Modular Prefab Technology Awards, November 2011 State Intellectual Property office of the People's Republic of China. 2023 an award winner of A Design Award at Italy and has mentioned as a best designer ranking in different design site organizations."

9. Key Takeaways:

- MHS Building Systems offers an innovative and sustainable approach to modular construction using a unique structural aluminum framing system.
- The system addresses the challenges of connecting hollow aluminum extrusions, providing a strong, versatile, and efficient solution.
- MHS emphasizes sustainability through reduced material use, efficient transportation, minimal site impact, reusability, and adaptability.
- The system is designed for a wide range of applications and users, with potential for mass adoption.

10. Additional Resources:

- **Websites:** www.modularhousingsystems.com, www.kithaus.com
- **Social Media Links:** [Instagram](#), [Houzz](#), [YouTube](#), [Facebook](#), [Pinterest](#), [Twitter](#), [Telegram](#).

This briefing document should provide a comprehensive overview of the MHS Building Systems based on the provided source material. [Visionary review](#), [MHS Podcasts](#)

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Certificates

This is to certify that
Mohammad Taghi Siahatgar
 has attended the
Conference on Research in Civil Engineering, Architecture and Urban Management and Sustainable Environment
 Held by:
IPV Scientific Research Center
 Date & Duration Course:
15th Dec. 2015
 8 hrs.
 Registration Number:
EAC512151934

United States Patent
 Siahatgar

(12) Patent No. _____
 (13) Date of Patent: _____

(21) **MODULAR PANEL FRAME ASSEMBLY SYSTEM**
 (22) Inventor: Mohammad T. Siahatgar, F.O. Box 700, Laguna Hills, CA 92653-2004
 (23) April No. 08/264
 (24) Filed: Aug 15, 1998
 (31) Int. Cl. 7: E04B 1/86
 (32) Int. Cl. 7: E04B 1/86
 (33) Foreign Patent Documents: 400,197, 200, 201, 202, 204

(54) **ABSTRACT**
 A modular panel frame assembly system which uses an expansion along which the members, from their assembly, separated from one another by a substantial amount. The separable frame members which are arranged in the separable frame and have an end arranged for the expansion clamp and have an end arranged for the expansion clamp and have an end arranged for the expansion clamp and have an end arranged for the expansion clamp.

(57) **CLAIMS**
 1. A modular panel frame assembly system which uses an expansion along which the members, from their assembly, separated from one another by a substantial amount. The separable frame members which are arranged in the separable frame and have an end arranged for the expansion clamp and have an end arranged for the expansion clamp.

- 1- Beam (MHS-170-4W)
- 2- Column (MHS-170-4W)
- 3- L Connector
- 4- C Channel 2H
- 5- Bolts
- 6- Master Lock

Note: All beams head has one MHS Lock to connect to the MHS post.

MHS SUSTAINABILITY
 Building the Future Responsibly

QAI
 Quality Assurance Institute